Subject Code: IP31B/R13

M. Pharm I Semester Regular Examinations, March, 2014

RESEARCH METHODOLOGIES

(Common for all Specializations)

Time: 3 Hours **Max Marks: 60**

Answer any FIVE questions

All questions carry EQUAL marks

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1. a) In a city 10 accidents taken place in a span of 50 days assuming that number of accidents follows the poission distribution. Find the probability that there will be 3 or more accidents in a day? 6 M

   b) Write the chief characteristics of the normal distribution? 6 M

2. a) Calculate coefficient of correlation from the following data. 6 M

X	12	9	8	10	11	13	7
Y	14	8	6	9	11	12	3

   b) Determine the equation of a straight line which best fits the data. 6 M

X	10	12	13	16	17	20	25
Y	10	22	24	27	29	33	37

3. A reputed pharma company is producing tablets from two different machines. A test is carried and to ascertain the variability of the machine and the results are as follows. 12 M

	Machine – 1	**Machine – 2**
No. of tablets in sample	100	120
Average weight	320	346
Standard deviation	2.5	3.1

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4. Two groups of persons received anti hypertensive formulation and placebo respectively. The blood pressures from these two groups were measured and the number of hypertensive patients was showed in the following table. Whether the anti hypertensive formulation is differed from placebo significantly or not. 12 M

	Number with hypertension	**Number without hypertension**	**Total**
Drug	20	80	100
Placebo	40	60	100
Total	60	140	200

5. Write about the advantages and disadvantages of Latin square designs. 12 M

6. The following data (in tons) are the amounts of sulfur oxides emitted by a large industrial plant in 40 days. 12 M

24	15	20	29	19	18	22	25	27	9
17	20	17	6	24	14	15	23	24	26
19	23	28	19	16	22	24	17	20	13
19	10	23	18	31	13	20	17	24	14

Use the sign test to test the null hypothesis $\mu=21.5$ against the alternative hypothesis $\mu > 21.5$ at the 0.01 level of significance.

7. Explain about the simplex Lattice design. 12 M

8. Three different machines are used for a production. On the basis of the outputs, test whether the machines are equally effective. 12 M

Outputs		
Machine - 1	**Machine – 2**	**Machine – 3**
10	9	20
5	7	16
11	5	10
10	6	4

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